

REMARKS

Claims 1-7, 9, 10, 12 and 14 are pending in the subject applications. Claims 9 and 10 have been amended herein and claim 6 canceled. No new matter has been added by virtue of these amendments, support for which is provided in the original claims of the application and throughout the application as filed.

1. Specification

The specification has been objected to as "failing to provide proper antecedent basis for the claimed subject matter." In particular, the Office asserts that "The claimed 'spacing have a blind ratio of not less than 0.2 and not more than 17' is not positively recited in the specification.

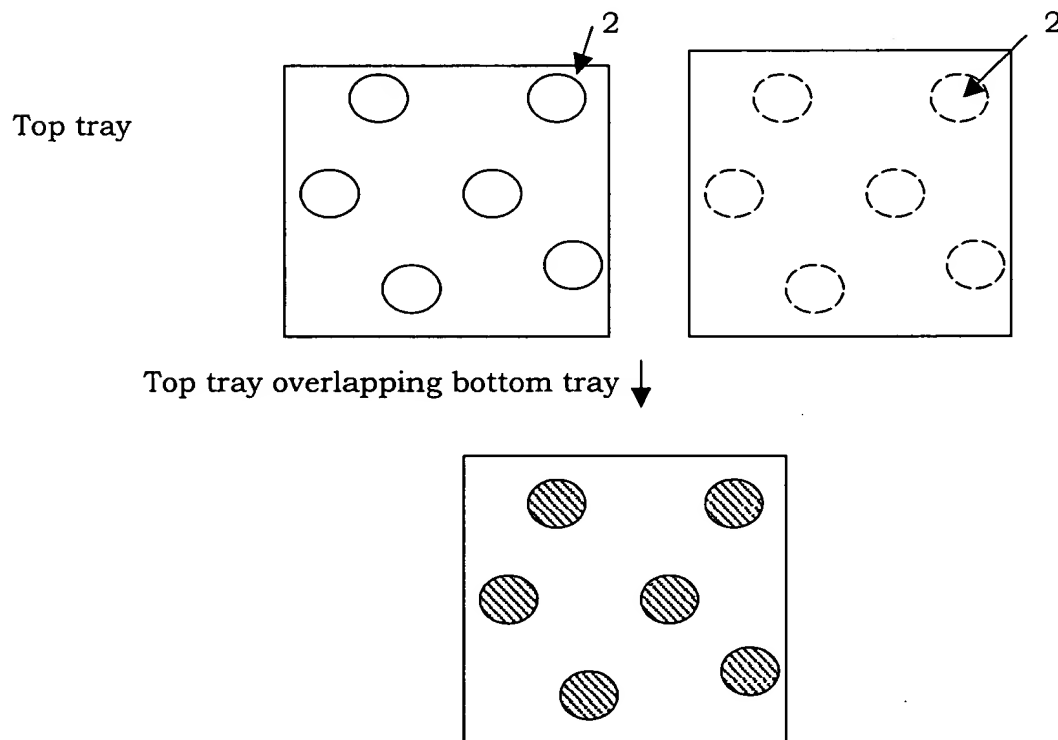
Applicants believe that this statement has a typographical error and should read "spacing have a blind ratio of not less than 0.2 and not more than 1" rather than 17" (see claim 7).

Applicants respectfully submit that support for this claim statement is found on page 26, line 16 to page 27, line 2 and Figure 7. In these portions of the specification, the blind ratio is defined as " $1-(S/T)$ ". S is the sum of the areas where the holes of the upper one of two adjacent perforated trays overlap the holes of the lower perforated tray (as shown in Fig 7, wherein solid circles 2 represent holes of the upper tray and dotted circles 2 represent holes of lower tray and wherein the shaded area represents the area of overlap). T is defined as the smaller one of the sum of the areas of the holes of the upper perforated tray and the sum of the areas of the holes of the lower perforated tray.

At a minimum, the blind ratio would be 0. It is an indisputable mathematical fact (given that the blind ratio = $1-S/T$) that the blind ratio could not be lower than 0 because this would require that $S/T > 1$, which would require that $S > T$. In other words, the area of overlap of the holes would have to be greater than the sum of the areas of the holes. This is not possible since the sum of the area of the holes is the

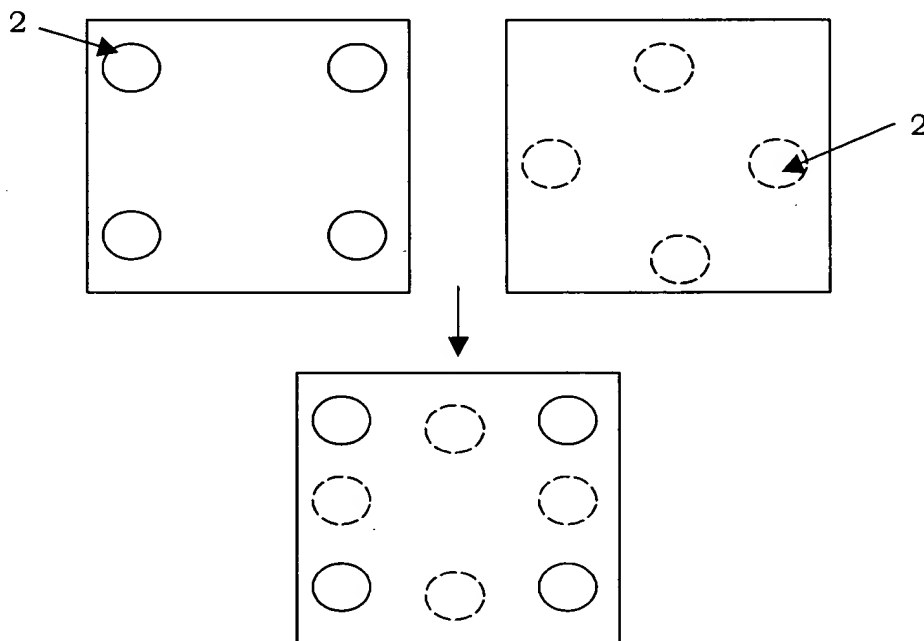
largest possible area of overlap in the holes ($S=T$ when the entirety of the holes overlap. When only portions of the holes overlap, $S<T$ and, thus, $S/T < 1$).

Thus, in order for the blind ratio to be 0, for example, the holes of the upper tray could be identical to the holes in the lower tray and could be placed exactly above the holes of the lower tray for complete overlap (as shown below). In this case, the sum of the areas of overlap (shaded area) would be equal to the sum of the areas of the holes because the entirety of the holes overlaps. If the holes of the upper tray are identical to the holes of the lower tray, then the sum of the holes in the upper tray is equal to the sum of the area of the holes in the lower tray, which is also equal to the area of overlap. Thus, in this case, $S=T$ and $1-S/T = 1-1=0$.



On the other hand it is also an indisputable mathematical fact that since the blind ratio $= 1-S/T$, the maximum blind ratio could occur when $S/T = 0$, resulting in a blind ratio of $1-0=1$. The blind ratio could never be greater than 1 because this would

require that S/T have a negative value, which would require that the area of overlap or the area of the holes have a negative value, which is not possible. Thus, there is support for the upper bound of 1 for the blind ratio. An example of such a blind ratio occurs when there is no overlap as shown below and, thus, $S=0$.



Thus, there is support for the upper bound of 1. As for the lower bound of 0.2, it is set out in the specification that "the blind ratio is preferably 0.2 or higher" (page 27, line 4).

Accordingly, Applicants respectfully submit that support for a blind ratio ranging from 0.2 to 1 is found in the specification based on the equation for blind ratio, based on indisputable mathematical fact, and based on the statement on page 27, line 4.

2. Claim Rejections

The Office asserts that "Claims 9-10 provides for distilling in a perforated tray tower without down comer, but since the claim does not set forth any additional steps

involved in the method/process, it is unclear what method/process applicant is intending to encompass."

While Applicants traverse, claims 9 and 10 have been amended to further specify Applicants' method/process steps. In particular, Applicants note that what is claimed is a method for distilling a polymerizable compound or a liquid containing an easily polymerizable compound using the perforated trays described by Applicants.

The Office further asserts that "Claims 1-2 and 4-7 are rejected under 35 U.S.C. §101 because the claimed recitation more of structures, without setting forth any steps involved in the process, results in an improper definition of a process." In particular, the Office asserts that:

Claim 4 does not differ substantially from claim 1 with respect to the structural elements involved. The differences seen are in the preambles and in the "wherein" clause in the claims. However, these differences are deemed not patentability distinguishable because a preamble may or may not be given patentable weight, and the "two or more" in the "wherein" clause of claim 4 falls within the "multiple perforated trays" in the "wherein" clause of claim 1.

In claim 6, it is unclear what constitutes the "higher" within the context of the claimed invention.

Regarding claim 6, Applicants canceled this claim, without prejudice as the subject matter of claim 6 overlaps with claim 7.

Regarding claim 4, Applicants respectfully traverse. Claim 4 reads as follows:

4. A perforated tray tower without downcomer, comprising a plurality of perforated trays without downcomer disposed respectively at a plurality of stages, each of the plurality of perforated trays without downcomer being provided with a plurality of holes, wherein

each of the plurality of holes has a diameter d in a range of from 10mm to 25mm,

the perforated tray without downcomer has a thickness in a range of from 2mm to 8mm,

the perforated tray without downcomer has an opening ratio in a range of from 10% to 30%, and

each of the plurality of holes is separated from an adjacent hole by a center- to-center distance in a range of from $1.2d$ to $3d$,

wherein, when two or more of the plurality of perforated trays without downcomer are used at the same stage, the two most closely located holes that respectively belong to adjacent perforated trays are separated from one another by a center-to-center distance in a range of from 50mm to 150mm.

Applicants respectfully submit that the portion of the claim "comprising a plurality of perforated trays without downcomer disposed respectively at a plurality of stages, each of the plurality of perforated trays without downcomer being provided with a plurality of holes" is an element of claim 4 that is not set forth in claim 1. Claim 1 recites a "perforated tray without downcomer provided with a plurality of holes". Regarding a plurality of perforated trays, claim 1 only recites that "multiple perforated trays without downcomer are used at the same stage in a perforated tray tower without downcomer". However, claim 1 does not contain the structural element of a plurality of perforated trays disposed at a plurality of stages". This element is contained within claim 4. Further, this element is contained in claim 4 after the comprising term (after the preamble) and before the wherein clause and, thus, it is in the body of the claim rather than the in the preamble or wherein clause. Thus, it is entitled to patentable weight.

CONCLUSION


Reconsideration and allowance of claims 1-5, 7, 9, 10, 12 and 14 is respectfully requested in view of the foregoing discussion. This case is believed to be in condition for immediate allowance. Applicants respectfully requests early consideration and allowance of the subject application.

Applicants believe that no extension of time is required since this response is being filed before the expiration of the specified time period. Applicants, however, conditionally petition for an extension of time to provide for the possibility that such a petition has been inadvertently overlooked and is required. As provided below charge Deposit Account No. **04-1105** for any required fee.

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Should the Examiner wish to discuss any of the amendments and/or remarks made herein, the undersigned attorney would appreciate the opportunity to do so.

Respectfully submitted,



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